



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,601	01/04/2007	Gilles Gauthier	293415US0PCT	5972
22850	7590	11/25/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
MC GINTY, DOUGLAS J				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
11/25/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com

oblonpat@oblon.com

jgardner@oblon.com

Office Action Summary

Application No.

10/586,601

Applicant(s)

GAUTHIER ET AL.

Examiner

DOUGLAS MC GINTY

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date 10-3-06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of the species LiFePO_4 in the reply filed on November 12, 2008 is acknowledged. The traversal is on the ground(s) that the claims are directed to a method with a common technical feature in the method steps and that the features in the claimed process distinguishes it from the prior art, namely, the short thermal treatment step which results in a highly pure and homogeneous product of small crystal size. This is not found persuasive because the method of claim 1 is not found to involve an inventive step. See the rejections set forth below. As noted at p. 3 of the October 15, 2008 Restriction Requirement, moreover, the formula in claim 1 reads on carbon by itself. The process of thermal decomposition of organic compounds to form carbon, i.e., soot and charcoal, has been well known for millennia.

The requirement is still deemed proper and is therefore made FINAL. The examination of claims 1-3 and 5-28 are limited to the formula LiFePO_4 . Claim 4 is withdrawn from consideration as directed to non-elected species.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3 and 5-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, second from last line, recites "in a short period of time". This limitation is indefinite because it is unclear how short is "short". At p. 12, lines 28-31, the specification indicates that a "short period of time...is intended to mean durations *generally* less than or equal to 1 hour" (italics added). The term "generally" is construed as meaning "usually" which does not preclude the possibility of periods longer than one hour.

To overcome this rejection, it is recommended that claim 13 be incorporated into claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5-20, 22, 24, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (Journal of Materials Chemistry, 14, 2690-2695).

Hsu teaches a process for preparing a composite material comprising LiFePO_4 and an electronically conducting compound such as carbon (Abstract). Organic compounds such as citric acid, ferrous oxalate dihydrate, and NMP are used in a sol-gel process with drying and thermal decomposition at 400-950°C for 2 hours (Experimental Section, pp. 2690 and 2691). Grain sizes of 20-30 nm and carbon content of 6-16 wt% are reported at Table 1 on p. 2691.

To the extent the language in claim 1 is understood, Hsu does not appear to teach thermal decomposition for "a short period of time".

Nevertheless, Hsu teaches thermal decomposition for 2 hours, as discussed above. Such a time period is deemed to be "short".

It would have been obvious for a process for preparing a composite material of LiFePO_4 and carbon, as taught by Hsu, to have a step of thermal decomposition for a short period of time because Hsu teaches a sol-gel step with a thermal decomposition step of 2 hours. The length of time of 2 hours is considered to be a short time, to the extent the present claim language is understood.

With respect to claim 8, one of ordinary skill in the art would have been aware of the use of a vacuum as an obvious alternative to the use of an inert gas such as N_2 in order to avoid exposure to oxygen. One of ordinary skill is not an automaton; he or she is capable of using common sense. *KSR Intern. Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742 (2007).

With respect to claims 13 and 14, the time period of 2 hours comprises the time period of 1 hour as well. Some thermal decomposition also would have occurred during the first hour. In any case, the time period of 2 hours is close enough to the time period of 1 hour that one skilled in the art would have expected the same result. MPEP 2144.05, I.

With respect to claim 18, Hsu teaches mixing, i.e., trituration, at p. 2690, col. b.

With respect to claim 28, the specific surface area of 10 to 50 m^2/g would have been prima facie obvious in view of the process taught by Hsu. MPEP 2112.02.

Claims 1-3 and 5-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ravet (US 2002/0195591).

Ravet teaches a process for preparing a composite material comprising mixing $LiFePO_4$ and an electronically conducting compound such as carbon [0069-0077]. The $LiFePO_4$ and organic compound are mixed and dried, and the organic compound is thermally decomposed at 700°C for 3 hours in an inert atmosphere of Ar [0071]. The amount of carbon in the final product may be 0.1-55 wt% [0020, 0071, 0073, and 0077].

To the extent the language in claim 1 is understood, Ravet does not appear to teach thermal decomposition for "a short period of time".

Nevertheless, Ravet teaches thermal decomposition for 3 hours, as discussed above. Such a time period is deemed to be "short".

It would have been obvious for a process for preparing a composite material of LiFePO_4 and carbon, as taught by Ravet, to have a step of thermal decomposition for a short period of time because Ravet teaches a sol-gel step with a thermal decomposition step of 3 hours. The length of time of 3 hours is considered to be a short time as well, to the extent the present claim language is understood.

With respect to claim 8, Ravet teaches drying under vacuum [0095]. Such treatment is considered to be the start of the thermal decomposition step. Moreover, one of ordinary skill in the art would have been aware of the use of a vacuum as an obvious alternative to the use of an inert gas such as Ar in order to avoid exposure to oxygen. One of ordinary skill is not an automaton; he or she is capable of using common sense. *KSR*, 127 S. Ct. at 1742.

With respect to claims 13 and 14, the time period of 3 hours comprises the time period of 1 hour as well. Some thermal decomposition also would have occurred during the first hour. In any case, the time period of 3 hours is close enough to the time period of 1 hour that one skilled in the art would have expected the same result. *MPEP* 2144.05, I.

With respect to claim 18, Ravet teaches trituration [0100].

With respect to claims 21, 24, and 26, Ravet teaches a sol-gel technique [0096].

With respect to claims 22, 23, and 25, Ravet teaches a variety of organic compounds [0024, 0052].

With respect to claims 27 and 28, Ravet teaches the formation of a powder [0071, 0073, and 0077]. The claimed particle sizes and surface areas would have been prima facie obvious in view of the process taught by Ravet. MPEP 2112.02

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS MC GINTY whose telephone number is (571)272-1029. The examiner can normally be reached on M-F, 830-500.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DOUGLAS MC GINTY/
Primary Examiner, Art Unit 1796